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LYMPHOSTASIS,

A REHABILITATION OF CHRONIC RHEUMATISM.

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DR. HANS FROELICH,
ST. LOUIS, MO.

REPRINTED FROM MEDICAL MIRROR, JANUARY, 1894.

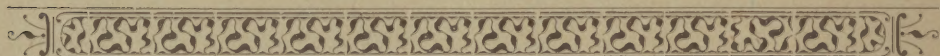


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The editor of the MEDICAL MIRROR desires to draw the attention of readers to the leading article of this issue; with the title, "Lymphostasis, or Chronic Rheumatism." This is a very important and valuable addition to the fund of medical knowledge. Dr. Hans Froelich, after years of study and observation, unquestionably is the first one to show the mutual pathological and anatomical basis and etiology of hysteria, traumatic neurosis, neuritis, neuralgia, and neurasthenia, with the chronic rheumatic conditions. The name given to this pathological state is surely well selected; lymphostasis means obstruction in the lymph channels, and surely with the evidence before us, in the article referred to, the point is well taken. The communication is not only of great value from a scientific stand-point, but it is presented in a terse, original and most thoroughly interesting way, and we are confident that it will make a profound impression in the field of pathology, and result in the prominent association of the name of Dr. Hans Froelich with that name that is expressive of those diseased conditions, namely, Lymphostasis.

[Leading editorial in the MEDICAL MIRROR for January, 1894.]



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LYMPHOSTASIS,

A Rehabilitation of Chronic Rheumatism.

BY

DR. HANS FROELICH, St. Louis, Mo.

It may be a difficult undertaking to revive an old fellow, who has more or less officially fallen into disgrace, just as it would really be one of the greatest achievements of modern times, if one by ignoring a disease could cause it to cease to exist. I could hardly believe my eyes, when I found that chronic rheumatism was not even mentioned in modern text-books on pathology. Does it perhaps pain less when treated with disdain by the priests of science? It is interesting to note that that old common-place creature of medical ignorance, hysteria, is being considered scientifically, just as if those gentlemen knew something about it. The neurologico-scientific jargon so frequently used in connection with hysteria reminds me of an experience I had in my first semester. It occurred during my first and last

attendance at the psychical college. The professor while teaching Hegel's Philosophy made use of the expression "Das Erkennen ist das in sich sein im ausser sich sein." This criminal vague way of expressing himself exasperated my yet unspoiled nature to such an extent that the same professor never saw me again.

In order to show how minutely the differences of those diseases of which we know nothing are being defined, I need only mention neurasthenia and spinal irritation, between which I was never able to make a clinical distinction, because both are based upon the same pathological anatomical changes of the tissues. The same is the case with nearly all the various kinds of diseases which are labeled hysteria. When, a long time ago, Sydenham (I believe) introduced the designation of hysteria,

he surely had no idea that this naming would cause more bloodshed and torture than perhaps Torquemada's Inquisition, the local treatment, and afterwards the coronation of it, the wholesale castration for a disease, the origin, of which we are entirely ignorant of. The cloak of science covers a good deal, but this chapter is the saddest one, for it treats of really criminal remediation. This surgical side of the treatment of hysteria is not less criminal than the medical, for where the one castrates, the other renders insane. Fact, gentlemen! If a so-called hysterical person consults you, you look at her at first with a certain sublime disdain, which is only moderated by the expectation of the fee. You notice then that this patient looks not only very well, but sometimes even is a picture of bodily health, and this woman narrates a Jeremiah's lamentation, compared to which the Miserere of Trovatore is merely a song. She tells you of disagreeable sensations and often of frantic pains, which exacerbate in irregular intervals and render life a burden. You inquire of the patient regarding clavus and globus hyst.; and, surprised by your profound knowledge, the patient acknowledges she suffers from it. She leaves the office with a prescription and with the impression that you do not believe her. Probably you tell her husband, shrugging your shoulders, when you meet him, that he may feel easy about his wife, that she suffers from hysteria, all imaginary symptoms without pathological causes, which is particularly interesting, if there is a case of paralysis. The woman sees herself treated as a *malade imaginaire* by her nearest relations, nevertheless suffering without being able to cure her pains

by imagination, on account of her physician's ignorance. But these doubts of her honesty, which are pronounced with such assurance, are only too apt to exert a detrimental influence upon her state of mind which you would call hysterical psychosis. That commences perhaps by the patient exaggerating her sufferings with the purpose of causing her affliction to be believed in until she really believes in her imagination. No, there is a hysteria rightfully, and on an easily established basis, too, and the reason that the pathological basis has not been found before, is very simple. Hysterical as well as chronic rheumatic patients usually die of other diseases, but in a post-mortem, only the interest in the direct cause of the death dominates the situation, as Manteuffel well remarks (*Berl. Kl. Woch.*, 1873, p. 176). Another instigating circumstance for our former inactivity and subsequent ignorance is that hysteria and chronic rheumatism are based upon a perturbation of the lymph system. But the lymph has caused so many obstacles to the investigation, especially *in cadavere*, that we must feel highly satisfied that we have been at last enlightened through the studies of Drs. A. Schmidt, Pekelharing, Lilienfeld, etc.

I invite you to discuss the following points with me:

1. Various causes, too rich food and correspondingly insufficient exercise, local influence of cold, injuries, can produce a stagnation in the lymph system, which is principally confined to the lymph spaces. The lymph fissues become extended by this engorgement, and the Grawitz dormant cells provoke a small cellular hypertrophy of the intestinal tissue with deposition of fibrine. This process is

first noticed between the muscle fibrillæ and the terminations of the nerves. This not entirely stopped but retarded flow of lymph causes the nutritive fluid which surrounds the parenchyma of muscle and nerve to be insufficiently renewed, thereby becoming exhausted. This causes a fatigue of the parenchyma, but is not sufficient to create total degeneration. This same disturbance of the nutrition can take place in the brain or spinal cord. It is analogous to the interstitial hyperplasia of our large glands, with the single difference that in the latter the parenchyma will in time be destroyed.

2. This nutritive disturbance of the parenchyma causes the symptoms of chronic rheumatism, hysteria, traumatic neurosis, neurasthenia and neuralgia, muscular rheumatism, so-called interstitial myositis and multiple neuritis.

3. The changes produced are probably of a chemical, not bacterial nature.

The phenomena of the interstitial disease of our large glands are known as hyperplasia of the connective tissue, with pressure upon the parenchyma. The parenchyma becomes destroyed by this pressure, and more still by the nutritive disturbance caused by the engorgement of the lymph canals; the nutritive tissue retracts, being deprived of its physiological function, which consists in the separation or better isolation of the parenchyma elements in supplying them with nutritive fluid and in renewing the effete matter. I do not wish to mention here the toxico-chemical causes of these interstitial processes, but rather to accentuate this point, that with such patients there is always too rich a supply of food with too little combustion, caused by insufficient peri-

staltic and voluntary motion. These circumstances, single or combined, then cause an engorgement of the concentrated lymph, which condition is first noticed in the fissures and tissue spaces, the source of the lymph system.

Our treatment of these diseases proposes to remove by the reviving of the peristaltic motion the results of the engorged lymph. This is reached to a certain degree, as the aperients administered in the first stages of the disease give at once a passing relief.

Why should these elementary pathological conditions not be active outside of our large cavities and intestines? We have everywhere the same anatomical physiological basis, parenchyma elements, which are separated from each other, nourished and drained by connective tissue, only that here the place of the parenchyma is taken by muscle fibers and nervous tissue. We certainly have these engorgements just as well there as inside of the cavities, not only much more frequently, but more extensively. The prototype of this process of small cellular infiltration and deposit of fibrine is found in any contusion; the same has been proved for the so-called chronic interstitial myositis, accompanied by rheumatic swellings. The only hypothesis which I make use of here consists in the conjecture that the same nutritive perturbation can and must be supposed to exist, for the peripheral nerve terminations there, as where it has been already proved, for the muscle fibrillæ, we cannot logically separate them from each other. The flow of lymph in our intestines does not surmount the same obstacles as in the trunk or the extremities. We have three continual motors in our large

cavities which are independent of our will-power — circulation, respiration and peristalsis—which exert a permanent influence upon the motion of the lymph. Respiration and peristalsis operate upon the centripetal motion of the lymph by aspiration. Each motion of the diaphragm calls for an expansion of the thorax, the same contraction of the diaphragm communicating itself coincidentally to the stomach presses upon its volume, the walls of the stomach contract, forward its contents and the peristalsis moves on quietly and permanently to the anus. The third motor in our body is the heart. It has very little to do with the flow of the lymph. The passage of the plasma through the stomata of the blood capillaries to the fissures of the connective tissue must be regarded as a product of secretion of the cells of the blood capillaries (Heidenhain).

This motion is in part a filtrating pressure, but is principally cared for and upheld by the amoeboid motion of the leucocytes (Cohnheim). This plasma keeps up the nutrition of the tissues from these fissures, wherefrom the necessary nutritive substances are selected by the tissues. The effete matter is led back to the fissures and is conducted to the lymph capillaries, which forward them to the venous ways (Landois).

The elastic fiber which takes the place of the amoeboid motion of the leucocytes at the beginning of the lymph capillaries, and furthermore the *horror vacui*, forward the lymph to the cavities of the abdomen and chest. It, therefore, evidently takes very little to stop this very feeble current of the lymph from the blood capillaries to the lymph capillaries, be it, for instance, in the large cavi-

ties a retarding of the peristalsis as it happens in habitual constipation, or outside of the intestinal cavities insufficient exercise of the muscle. Such a chronic engorgement of the lymph current has the following consequences: the sluggishness or complete stoppage of the passage of the lymph extends back to the fissures, the effete matter of the parenchymatous tissue cannot be carried off to the kidneys to be removed, but accumulates around the elements of the muscle and nerve parenchyma; instead of furnishing nutritive fluid for the parenchyma this fluid becomes exhausted and the parenchyma suffers from an intense disturbance of its nutrition, which can reach exhaustion, though hardly results in complete degeneration. But this chronic nutritive disturbance suffices to injure their function in a high degree.

This nutritive disturbance is one important consequence of the engorgement of the lymph.

B. Grawitz has demonstrated that in all progressive disturbances of nutrition not only the fixed corpuscles of the connective tissue become active, but his dormant cells awaken from their “sleeping-beauty” condition, turn mobile, and a small cellular infiltration is established before a leucocyte immigrates. This infiltration is soon augmented by the presence of fibrine. How does that come to pass? Excessive active (as with the mountain disease) and passive motions thicken the blood; want of exercise thickens the lymph. The blood adds in its capacity of a supply current, albuminates, fats, salts, carbohydrates to the tissues; the lymph brings the excrementitious products, urea, CO_2 , H_2O , and salts to the secreting organs. This effete matter returns, if these

secreting organs are not competent for removal. Patients of this kind not only suffer from want of exercise but they add more food to the blood than it is able to accommodate, consequently the concentration of the lymph is being favored and we have a plethora hyperalbuminosa. But that does not suffice for the explanation of the deposition of fibrine from the plasma. We know that fibrine precipitates on the degenerated walls of bloodvessels. That may be the case here, as the fissures and capillaries filled up with the small cellular infiltration may be regarded as such. A. Schmidt has demonstrated that there are changes in the blood; real diseases of the blood, in which the physiological exchange of the white blood corpuscles seems to be exceedingly increased, and the products of the circulation accumulate in the blood. The consequence is, of course, the appearance of spontaneous coagulation within the organs of circulation. The supposition is not unwarranted, that the same is the case with the lymph, at least I wish to explain in that way the formation of lymphangitis which is often noticed in chronic rheumatism and which causes, usually, an increase of temperature.

According to Schmidt, the ferments which cause the precipitation of the fibrinogen, are already in the blood. We find with each increased hyperplasia within the connective tissue an increased dissolution of leucocytes which raises considerably the contents of fibrine in the lymph. In consequence of the dying off of leucocytes which give off nucleo-albuminates to the plasma, these nucleo-albuminates join the carbonate salts of

the plasma and act in this connection as ferments.

According to Lilienfeld, the leucocytes contain a substance, the nucleo-histon, which can be split into nuclein and a coagulable albuminate—the histon. This nucleo-histon possesses the important quality to keep the blood-fluid, if introduced into the circulation, or added to the blood gotten by venesection. On the other hand, the coagulation of the blood is an effect of the leucocytes, especially of the nuclein, which is contained in them. Both substances, the coagulation-causing and coagulation-preventing, are connected with each other in the nucleo-histon. The so-called histoplasma, which remains fluid after the addition of nucleo-histon, becomes coagulated, nucleo-histon derived from leucocytes, is added, even if the nuclein solution has been boiled. If one adds a nucleo-histon solution to a fibrinogen solution, there will be no coagulation until after addition of a dissolved carbonate salt. Thus the carbonate salts confer upon the nucleo-histon coagulation-causing qualities, and the fluid condition of the blood is tied to the chemical presence of nucleo-histon, but each time nuclein will be made free if the substance splits, and will become coagulation-causing.

In the same manner Pekelharing finds that the fibrine ferment is a carbonate combination which is able to confer carbonate upon fibrinogen and thus to produce from the soluble fibrinogen an insoluble carbonate holding an albuminous body.*

*A. Schmidt, *Zur Blutlehre*, Leipzig, 1892.—L. Lilienfeld, *Hæmatolog. Untersuchungen*, Archiv. f. Physiol., bei Dubois-Raymond, 1892.—A. G. Wright, *The Lancet*, 1892.—V. A. Pekelharing, *Die Bedeutung der Kalksalze fuer die Gerinnung des Blutes*, Virchow's Festschrift, 1892.—Hammerstein, Green, Rossel, etc.

Another cause for coagulation of the lymph is the influence of cold. Thrombi originate interstitial hyperplasias, which are caused probably by the increased destruction of cellular elements in the much refrigerated blood (Landois). Or these cellular elements with fibrine attach themselves to the walls of the lymph-vessels and cause a lymphangitis which is often noticed with rheumatism.

After having seen how fibrine may be precipitated we must follow up its further behavior. *Restitutio ad integrum* can take place if this formation of fibrine soon ceases; but if some time passes before that takes place we will have subsequent precipitations at other places, the older ones getting dryer, hard, by absorption of the gelatinous plasma, the small cellular infiltration continuously disappears and a more or less organized substance is formed, similar to cicatrized tissue. Since there is not much space for expansion in the intraparenchymatous tissue the fibrine connects the various muscle fibrillæ with each other. The same process probably takes place within the nerves when partial hyperplasia of the neuroglia causes pseudo-neuromata to develop, as I observed once, in great numbers on the nerve cruralis. In time the afflicted muscles become harder, shrink, but never atrophy completely to my knowledge. Such muscles feel, if you palpate them with a moist finger, uneven, but transversely ribbed.

Of more importance in their influence upon the function, by connecting the tissues, are the precipitations of fibrine between muscles, nerves, faciæ, vessels, bones and mucous pockets. They occur very often and may reach the size of a halved goose egg underneath

the muscle. They cannot be shifted from the femur and seem to be situated directly upon the periosteum. These swellings feel elastic where they are superficial and often simulate fluctuation, but seldom are œdematous. They reach their largest size underneath the tendons because probably the motion of the body of the muscle hinders their expansion. If located between muscles it is natural that these swellings exert an extremely disturbing effect by their pressure upon nerves, muscles and vessels. Their most deleterious effect is developed by their connecting all surrounding tissues, so much so that, for instance, the muscles of the thigh cannot be distinguished or separated. It is evident that the skin and the subcutaneous tissue which have no contractile property are attacked first. The skin therefore is so closely attached to the underlying muscles that it can absolutely not be raised in folds. If now, for instance, such patient desires to extend his leg, its stretched muscles are fastened to their antagonists, the flexor muscles must be moved with them. The motion pulls the adhesion of the antagonists, causes therefore pain, and at the same time the intended motion is poorly, slowly and imperfectly executed. The more the adhesion of the antagonistic muscles increases, the more insecure and deficient will be the motions, until at last complete invalidism results. Where these swellings are undisturbed, as underneath the tendo Achillis, they will ossify and form Virchow's hyperplastic osteomas. These ossifications can occur anywhere with increasing invalidism; they have for many years been recognized. It is the interstitial tissue out of which the bone grows. Wherever there is interstitial tissue,

bone may develop in the neurolemma, periosteum, etc.*

These hyperplastic osteomata are especially noticed on the extremities. They can only be considered as exostoses after Virchow, as an exostosis is a hyperplasia of osseous substances of a normally existing bone. Unfortunately Virchow's original treatise is not at my disposal and I make reference here to Dr. Kreiss, *Primäre Schwielige Myositis*, No. 51, *Berl. Klin. Woch.*, 1886.

Dr. Kreiss's observation of the formation of these ossifications harmonizes completely with my view and experience of the influence of the atmospheric conditions upon the formation of these indurations, and I am corroborated by the anatomical researches of Mays, who says that the pathological process takes its start from the interstitial tissue, the tendons, fasciæ, the intermuscular connective tissue, the periosteum; in fact, the seat of these ossifications extends far over the muscular system. Virchow says that the subcutaneous tissue is not liable to be involved or affected by this process. This, however, is only true in regard to the production of osteomata. I never saw such in the subcutaneous tissue, still the hyperplasia takes place there too and can accordingly, theoretically, lead to ossification.

In the bloodvessels there are less disturbances, more, however, in the nerves. We can have all possible anæsthesia, hyperæsthesia, absence or increase of reflexes; all the symptoms of pressure, including strangulation, occur in connection with defective nutrition of the nervous parenchyma, through engorgement of the nutritive plasma. It is certain

*Koester, *Berl. Klin. Woch.*, p. 187, 1893.

that the latter cause is far the more frequent. Pressure upon the nerves usually involves pressure upon the near arteries and veins. I have found only one mention of absence of the arterial pulse in literature. Œdema is not often noticed, and I never saw engorged veins or varices which would result therefrom. So the parenchymatous disturbance of the nutrition remains the principal circumstance. I wish to accentuate here that the more I recapitulate my cases the more I feel convinced that the brain nerves are relatively seldom involved; that it is mostly, with few exceptions, the spinal nerves down to nerve coccygis. If there are neuroses of the brain nerves or nerve sympathicus, they are originally caused by irradiation. The symptoms of the brain, if they are really caused there, are to be attributed to the nutritive perturbations which are caused by the pressure of indurative swellings of the neck upon the lymph canals passing down from the brain. Fatigue, with temporary narrowing of the field of vision, of neurasthenia, must be supposed to be based upon engorgement of the lymph canals in the cortex of the occipital lobe. They behave exactly as they do in the muscles, nerves, etc., of the trunk and extremities; that is, the perturbation of the nutrition is not severe enough to leave a fatty degeneration of the nerve elements and to render possible a pathological-anatomical preparation, but they are important enough to cause a considerable restriction of the function.

Now about the joints, I can only mention my experience, but that teaches me that the chronic rheumatism of the synovial membrane is exceedingly rare. The appendices, liga-

ments are usually afflicted, the mucous pockets are much swollen, but the joint proper is seldom the seat of this affliction, and if it is, then acute rheumatism has preceded it, or a scrofulous diathesis is present, which is elsewhere exhibited.

The ligaments are far more susceptible, and also the periosteum, and I especially mention the tibia, the outside of the calcaneum, femur, humerus, a few places of the skull, and the sacrum. The cellular hyperplasia of the periosteum imparts a particularly velvet-like sensation to the finger.

The lymph canals exhibit an interesting phenomenon. They thicken by precipitation of fibrine in a centripetal direction, they are easily felt as hard round strings of varying thickness, often interrupted by nodules or protuberances like a rosary. Usually, after some imprudence or exposure, a little increase of temperature sets in, excessive, objective and subjective painfulness demonstrates the area of a lymphangitis on an extremity or the neck, but hardly where there are not some fibrine deposits in the periphery. By and by the soreness leaves, and perhaps the strings too. Ordinarily it remains, collateral lymph-ways form and fill up again and so on, until whole tumors of such accumulations of obliterated lymph canals are established, as it is especially in the case of fat women, on the inside of the knee, on the adductors, and outside of the trochanters. A like condition results upon the region from the hip bone to the loins and on the angle of the pectoralis major with the humerus. So we have the acute closing up of a lymph-canal by the formation of thrombus several inches in length, from acute feverish lymphangitis, and the chronic gradual narrowing of the

lymph-canal's lumen by successive precipitation of fibrine. The latter process is the rule, and explains the objective and subjective feeling of coldness in the limbs of such patients, as the nutritive fluid is not often and thoroughly enough renovated.

The influence of the weather upon rheumatic diseases is known by the popular name "The Rheumatic Barometer." I made observations for a full year and found that the temperature has little influence if the patient can protect himself from local influences of the cold by proper clothing. But as soon as the barometer fell and the humidity of the air reached a certain degree, I heard from my first visit in the morning until late at night everywhere the same lamentation, neuralgias, nervous feeling, etc. This harmonizes with the paroxysmal character of neuralgia, hemicranias, neurasthenias, etc. I wish to state in explanation of this phenomenon the following:

Our body, with all its tissues, is hygroscopic. If the weather is nice, the air dry, we give off considerable water to the air, and thereby our tissues and the whole body will shrink. As soon as the barometer drops and the humidity of the air reaches a certain degree, the body gives off no water to the air, and all our tissues swell up. Everybody has had this experience with tight shoes, which he can put on very well in good weather, but hardly in bad weather. Upon this swelling of the tissues, too, is based the depressed or blue feeling of otherwise healthy persons, the flow of the lymph off the brain is retarded, the brain parenchyma hungers and its function is lowered. Now, the rheumatic indurated or Froberg's swelling is subjected to the same laws. With

increasing humidity of the air they swell and press upon the nerves, if such are near. There are very few exceptions to this rule, and these are based upon the location and shape of the swelling.

A very marked influence is exerted by an air which is charged with electricity, as before great storms. It incites rheumatics to the climax of pains and nervousness. It is astonishing, indeed, that the atmospheric perturbation can be thousands of miles away and still exert its influence. At the beginning of last September we had a terrible storm which came up from the West India Islands all along our Atlantic sea-coast and cost more than a thousand lives. Here, in St. Louis, we only felt a change of temperature, with beautiful dry weather, but several of my patients felt the perturbation just as if the storm had reached here. That is all the explanation I can give at present of this unsolved puzzle.

The appearance of these deposits of fibrine in our body is nearly always symmetrical, usually more accentuated on one side of the body, which is perhaps in connection with the innate and educated predominance of one-half of the body.

They are always in the same places, evidently *loci minoris resistentiæ*, which are afflicted. The question will certainly be advanced, whether or not these deposits of fibrine are due to parasitic influences. I could find nothing, and hardly believe that ever anything will be found because the whole process is of a chemical-physical nature. We have the same process in each injury; for instance, the fracture of a leg, not only the lymph canals of the periosteum, those of all the fleshy

parts in the line of the fracture are lacerated and contused. We see the formation of the same small cellular infiltration and deposits of fibrine which glue the concerned tissues together, and it takes often months after the callus has formed till the whole circulation is established again. But for a long time to come these patients complain about rheumatic pains in the fractured leg, especially if the weather changes. This process is a prototype of a traumatic neurosis. We cannot suppose that a parasite put up its wigwag there. Further, we would expect that certainly the lymphatic glands would be swollen in an affliction like this, where only the lymph is perturbed like it is in syphilis, tuberculosis, carcinoma, etc., but I never noticed a swollen gland, and the bodies, which might be regarded as such, always proved to be rheumatic swellings and were in unusual places.

THE EXAMINATION IS OFTEN DIFFICULT.

L. Eaver* evidently is on the right line, and I agree with everything which he says in his meritorious article on rheumatic swellings.

Eaver says whoever thoroughly examines, that is, feels the muscle by pressing it against its underlying base, or tries to separate it from the bone, and then follows it up with hard pressure from the head to the tendon of the muscle, will be astonished how often the consistency of the muscle is different in different places. One finds either the whole muscle transformed into a hard, tough string, or only so in a few places; on other places there are swellings from the size of a pea to that of a walnut. These changes are found either single or there are hundreds of them in one individual. Per-

* No. 9, *Berl. Kl. Woch.*, 1889.

sons who have swellings in their muscles present thickened patches upon the skin, excessively painful upon pressure. The skin swellings feel peculiar, and when one rubs them it seems as if there were several sheets of moist sheepskin between the hands. I have often noticed this slipping sensation and would add that it appears more like an unevenly ribbed body. I wish to mention another important point about the examination. The lines of the muscles and along the basis, if straight or in a curve, present always an uninterrupted line; as soon as the gliding finger feels even a slight interruption of this line, or a protuberance, we can be sure that this is diseased. To find swellings in the depth, under the glutæi muscle, or the pelvis, we must press very hard and equally, and make our observation with a gliding down motion. Any morbid change will be noticed at once and painfully by the patient. This pain is described as being different from the sensation felt in normal tissue. This pain is caused by the tearing of the numerous adhesions. Healthy tissue never feels painful by hard, but even, pressure. It takes much experience and indefatigableness to easily find the places where hyperplasias are likely to exist and if a close examination does not unveil any positive result it must be repeated, especially if the disease gives rise to suspicion of hyperplasias. One may be sure of the points sooner or later. Special advice about investigation follows later under the treatment of the single parts of the body.

We now arrive at the different *kinds of diseases* which form the pathological manifestation of this hyperplasia of the connective tissue and of the engorgement of the lymph.

To escape misinterpretation I wish

to state right here, that the *acute rheumatism*, which originates upon a parasitic basis, is only related to chronic rheumatism in that it very often leaves engorgement of the lymph system, which increasing predisposes to chronic rheumatism, but only after the acute process has ceased. Chronic rheumatism has feverish exacerbations only, if mild or severe lymphangitis augments an attack, and then often with a hardly perceptible rise of the temperature. The acute rheumatism is in the same causal relation to the chronic as gout (arthritis uræi). The widespread view that the chronic rheumatism belongs to the uric diathesis is completely false and obsolete, as uric acid is not produced in greater amounts than in other diseases. Even if we regard fibrine as a basis of the urine, it has nothing to do with the secretion of uric acid. Just as untenable is the expression so often used in England and in this country, "rheumatic gout," it remains all the same, whether one adheres to Garrod's theory about gout, or inclines to Ebstein's clear exposition; for if chronic rheumatism ever complicates gout, it is found there because the local necrosis of the tissue irritates the connective tissue to hypertrophy. The chronic rheumatism is there in the same relation to gout, as it is to a fracture of a leg. The expression rheumatic gout is caused by the confusion of the view which places both diseases upon the uric acid diathesis.

HYSTERIA AND THE HYPERPLASIA OF THE CONNECTIVE TISSUE.

If I were a candidate and asked, what is hysteria, I would answer: "Whatever is not subject to ordinary rules is considered hysterical." I can really not understand how, after hav-

ing perused for eight years the *Berl. Klin. Woch.*, and other literature, nobody has made use of the local pathological symptoms (not of the sexual organs) which are mentioned so often in the literature of the subject. Leyden correctly says: "It is nowadays one of the most important and difficult problems to decide how far a local disease influences the whole organism, or the reverse; how far a thorough affliction of an organism produces a local disease or influences it."

I wish to add to these words, that we ought above all and always to trace back a disease to a pathological change of the local anatomy, and if we cannot locate this change, where we suspected it, we must look for it elsewhere and not commit ourselves to the *cheap substitute of speculation*. After the local affliction of female sexual organs as the principal cause of hysteria has become untenable, we must omit the expression "hysteria" entirely, as convenient and beloved as it is. We always see the endeavor to transmit the cause of the hysterical symptoms to the central nervous system, though the result of the post-mortems is totally negative. One says, hysteria is based upon imagination. Do not even physicians imagine all possible exotic diseases if something ails them, notwithstanding their knowledge? Is imagination really morbid, for instance, with a child when playing? Then only idiots and stupid ones are healthy, for each man suffers from imagination and it is really only imagination which makes life worth living.

Another appeals to the Psyche; calls it psychosis. That appears to me almost like the answer of the candidate who, being asked how are we made aware of the actus visus when

the image has been reflected reversed upon the retina, answered: "Yes, back of the eye there is the soul, which turns the image."

I sometimes think that our neurological colleagues have one foot in the suggestive theory of Christian science; the other foot, I do not know where, surely not in Virchow's cellular pathology; perhaps in the largely propagated philosophy of the unknown. If there are individuals whose cells of personal will-power can be disconnected from the masse battery of the brain by suggestion, then there may be such whose cells of sensibility can be disconnected. That does not imply, though, that we can remove a chronic engorgement of the lymph with small cellular hyperplasia and deposit of fibrine within reach of peripheral nerves by suggestion; or, in other words, that we are able to cure a single pathological cell by suggestion.

I do not speak here of that hysteria which might be rather called educated naughtiness, and does not belong to the sphere of the physician, but I include all other hysterical symptoms, if I say that they are caused by defective nutrition (or perhaps pressure upon) of the spinal nerves caused by hyperplasia of connective tissue and engorgement of the lymph. They are caused either directly by the spinal nerves or communicated by their anastomoses with the nervus sympathicus and the brain nerves by irradiation. Those symptoms of the brain and spinal cord which appear in the course of a hysteria, and cannot be attributed to irradiation, are caused by the same parenchymatous nutritive disturbance of the central nervous system. If an exact history were taken of all the women which are received in the hos-

pitals for perhaps a fatal disease, if the neuralgic, hysteric, rheumatic, etc., symptoms of which they formerly suffered were exactly noted and the corresponding painful points of swellings in life-time considered, we should soon be in possession of more supplementing facts.

In order to show that neurasthenia and spinal irritation owe their appearance to the same phenomena, I will briefly discuss the traumatic neurosis.

First it was called "railway spine" and one investigator* distinguishes, as in German railroad coaches, three classes of traumatic neurosis. Here a case recurs to my mind which I had years ago.

A railroad official went one Sunday morning after breakfast to read his paper where many others read it. Suddenly his seat gave way and he fell with it, *dans le consommée*, as it is called in French. He injured the muscles of his back and I treated him for neurasthenia. It was not railway spine, though he was a railroad man. Could I call it on account of the circumstances "water-closet spine?" It is evident that railroad men are exposed to more contusions of the muscles than others, but not all wounded railroad men turn neurotic or asthenic from it. I had the same experience with soldiers who were near an exploding shell and without having received any visible injury or contusion, suffered intensely from shock. It is probable that powerful concussion, fright (fire), etc., increase first the function immensely, but afterwards exert a very exhausting influence upon our nervous system, being comparable to a telephone box which was struck by lightning and burnt out.

*G. Roth, No. 9, *Berl. Kl. Woch.*, 1891.

I do not think it necessary to name these phenomena particularly. I admit *that sudden or lasting great demands upon our thinking, feeling or will-power may cause identical conditions in the parenchyma of our peripheral or central nervous system as any injury does, or any engorgement of the lymph from other causes.* The organ incited suddenly to the highest capability surrounds itself with more effete matter than can be removed by ordinary conditions, and the commencement of a chronic engorgement of the lymph occurs. The many accidents from false switching, for instance, are caused by too long working hours and fatigue of our central nervous system. We have the "insufficiency of the higher nerve centers against functional overloading" (Friedman).

The traumatic neurosis is otherwise a very good expression. Roth says about it: "In the first class, the typical railway brain, objective symptoms can be entirely absent. We notice besides the well-known neurasthenia, irritative symptoms, vague pains in various parts of the body. They are most pronounced along the vertebral column."

If Roth had examined well he would have found certain points which can be separated pretty well from the tissue, in which they are imbedded and which cause unbearable pain upon hard pressure. I think these are objective symptoms.

Those who travel second class have "painful sensations in various parts of the body besides increased irritability," as above and functional disturbances of the Psyche. Roth mentions the hysteric stigmata, hemianæsthesia and functional disturbance of the sensory nerves, re-

trenchment of the field of vision, without patients complaining of it. In the third class pure functional neuroses combine with organic changes of the brain and the cord. He cites two cases of traumatic neurosis upon which a post-mortem had been made and which exhibited arterio-sclerosis with spotted white degeneration of the medullated nerve fibers of the trunk of the nerve sympatheticus.

I will demonstrate later that all these symptoms of traumatic neurosis are identical with those of chronic rheumatism. If I knock my elbow against something, there will result for several minutes a numbness of the ulnar side of the forearm and hand, and I feel perhaps sick at the stomach from irradiation of the nerve vagus. Roth will notice, if he investigates, that these painful places along the vertebral column pass to the atlas, and that such patients suffer from disturbances of the sense of taste. I have at present a patient who with each rheumatic attack is afflicted with an eruption of blisters on the lower edge of his tongue and soft palate. He has on the same side a rheumatic paresis of the nerve facialis. For a long time I took these for dyspeptic symptoms, but stomach and nutrition were always in first-class order. About the psychical symptoms I expressed myself above.

The third class where there are positive pathological changes in the spinal cord and brain, does not belong here. Traumatic neuroses are seldom directly connected with brain or spinal cord. I can say so pretty decidedly, for I never saw a case of traumatic neurosis which could not be cured, because the affliction was peripheral and could be reached by local treatment. Where it is a lesion, a real

pathological change of the brain or spinal cord the prognosis would probably be worse. The two cases which showed arterio-sclerosis at the post-mortem certainly do not belong to traumatic neurosis. I will admit that an artery can turn sclerotic by a trauma at the place where the trauma took effect, but this sclerosis does not go on and causes no perturbations. Of course we can have diseases of brain and cord which present symptoms similar to traumatic neurosis or neurasthenia, but these are afflictions of the central nerve system, and not traumatic "homeless" neuroses. We can be sure to find with almost all so-called traumatic neuroses painful points, and if we do not find them after repeated careful examination and hard massage all over the body, then only may we think of brain and cord. I never found a *clinical difference between traumatic neurosis and neurasthenia*, and cannot find any among the described cases. Sometimes a trauma gives the starting point, or, what is more probable, an already existing but latent stasis of the lymph system is more accentuated by a trauma. Sometimes we see the same pathological condition without accidental trauma, and if any one can show me a real difference between neurasthenia and spinal irritation, for instance in Erb's description, then I yield. It looks to me as if one would distinguish between three dyed-in-the-wool niggers by calling them black, raven and real black.

At last the *polyneuritis, or multiple neuritis*, which distinguishes itself by really being no neuritis at all in the true meaning of the word, Eisenlohr* demonstrated, in nine cases, that in no case the localization of the para-

* *Berl. Kl. Woch.*, No. 42, 1889.

lysis corresponded with one or several nerves. In bad cases all muscles of the extremities seemed paralyzed. The affection presented itself, without exception, symmetrically distributed over the muscle groups of both sides. In bad cases the trunk muscles too, rarely those of the neck, were afflicted. Brain nerves are intact and never complicated with psychical symptoms. Reflexes of patella in seven cases extinguished, in two reduced but returned. Eisenlohr's *description is identical with the one I give for chronic rheumatism. The dissection of a case showed spinal and anterior roots intact and extended parenchymatous degeneration of skin and muscle nerves. This affection is not to be mistaken for acute feverish polymyositis, which shows hyaline degeneration of the muscle parenchyma not of the connective tissue * or the myxœdema, which I unfortunately do not know by my own experience.

The pathological cause of polyneuritis is the same as that of hysteria, traumatic neurosis, chronic rheumatism, a disturbance of the nutrition of the termination of the nerves, with the sole difference that the affliction extends over the whole body and is more grave, with a predominance perhaps of the neuralgic character.

Only the neuritis nodosa has claims to a real neuritis. The neuroglia of the diseased nerves is permeated with numerous nodules like a pearl string from hyperplasia of the connective tissue. Usually this kind is mixed up with the other perturbations. I only once saw a genuine case, as follows: A man thirty years old suffered for three years from exceedingly violent neuralgia inside of the right leg. Attacks appear regularly every

evening and patient walks the floor all night until morning. A surgeon made diagnosis of diseased bone, made incision, found nothing. Pains remained absent during healing of wound. Another surgeon pronounced it neuralgia, prescribed liniments without success. I found the whole district of the nerve cruralis intact, nerve cruralis resembled a rosary from knee up to Poupart's ligament. After the first massage the patient could sleep well all night and felt after three more treatments no return for four years; but usually these pseudo-neuromata are very persistent.

Now for a name for these diseases which have artificially been torn apart, though they exhibit the same pathological phenomena. We must deal with a rheuma, a real pure rheuma; we cannot find a better designation and one more to the point than that of chronic rheumatism. If one desires a classification he may distinguish:

Chron. Idiopathic Rheumatism,
Traumatic Rheumatism,
Asthenic Rheumatism,

but all caused by the same lymphostasis.

THE SYMPTOMS OF THE HYPERPLASIA
OF THE CONNECTIVE TISSUE, ON THE
DIFFERENT PARTS OF THE BODY.

You have the choice of the symptoms of neuralgia, neurasthenia, hysteria and neuritis and will always find the same symptoms in an affliction of the same parts of the body. I wish especially to state here the paroxysmal appearance of these symptoms which always coincide with a cold (change of weather), pleasures of the table, menstruation, which so much influences the lymph or a local inflammation. We can almost always find so-called painful points of pressure, especially along the course of the spinal nerves,

*Paul Hepp, 22 *Berl. Kl. Woch.*, 1889.

and of the fifth and seventh cranial nerves. These points are spread over the whole roof of the skull. There are normally impressions on the skull which are not particularly painful on pressure, but if we have to do with a neurasthenic rheumatic, we feel round soft swellings which, on pressure, cause the most intense pain and hemicranias. This is common in women with heavy hair. Such points are on each side of the occiput above the parietal protuberance where the nerve occipitalis emerges and on the insertion of the muscle temporalis. Larger parts of the aponeurosis may be painful, and in connection with it the muscles of the neck may be sensitive; usually there is more accentuation on one side of the vertebral column than on the other. The ligaments between the processes spinosi show pain upon pressure. The skin of the neck is often connected with the underlying tissue. The angle of the jaw and the insertion of the masseters, the foramen supra and infra-orbitale, the chin, the whole course of the carotid and the perichondrium of the larynx can be extremely sensitive down to the plexus brachialis and the feeling finger always finds on the painful places abnormal, particularly slippery swellings. The hemicranias are particularly cared for by the nerve occipitalis. Irradiations can be voluntarily provoked upon the nerve vagus. The peripheric nutritive disturbance of the nerve trigeminus can cause, besides the well-known neuralgia, paresis in connection with the radiating branches of the nerve facialis in the pes anserinus major and minor. I saw in this connection itching of the nose, or eruption on the diseased side of the tongue with vicariousness of taste, dryness in the mouth, but always in

connection with cold or change of the weather. That there is no central affection of the nerve facialis is clear by pressure upon the painful points, and the fact that cure is always effected by absorption occasioned by massage and electricity. In the cases where it is stated that the neuralgia ceases after stretching or resection of the nerve, we may suppose that by the interference of the operation the hyperplasia of the connective tissue has been absorbed or has been removed. I believe that the numerous catarrhal and other inflammations of the throat establish engorgements of the lymph, and hyperplasias of the connective tissue about the neck and throat. Pressure upon the nerve cervicalis, especially along the muscle sternocleido-mastoideus, provokes shooting pains in the hand, sometimes ructus, singultus, sick stomach, and even angina pectoris. The upper border of the muscle cucullaris shows very often large, oblong swellings. Afflicted ligaments and muscles around the vertebræ may cause pseudo-ankylosis. On the upper arm the nerve brachialis to the condyle internus is often very sensitive. This is caused by lymph canals which are obliterated by lymphangitis and which may be followed up the forearm and often have a nodulated indurated outline. The skin above the muscle deltoideus is connected with the latter, very painful, and underneath the ligaments of the shoulder are often attacked. The same remark may be made of the muscles of the forearm and the hand and finger-joints. The dorsal side of the intercarpal spaces is usually diseased, especially in writer's cramp. The vola manus seldom takes part. The pseudo-ankylosis of the joints are usually caused by affection of their nearest

surroundings. Jurgensen puts up the following painful points of the upper extremity:

Axillary point, responding to the position of the plexus.

Humeral point of the nerve axillaris back of humerus.

Median point in the elbow.

Ulnar point on cond. int. and again on the hand.

On the thorax we meet with affection of the pectoralis major (mastodynia), giving an exceedingly coarse sensation.

Passing to the fossa axillaris I saw especially among women, a pretty hard swelling connected with the skin, often of the size of a fist, which consists as elsewhere of a mass of thin round strings with evidently obliterated lymph collaterals.

The twelve dorsal nerves are often the seat of rheumatic affection. With the intercostal nerves the vertebral points are less affected, corresponding to the exit from the foramen intervertebrale than the lateral points, which correspond about to the middle point between the vertebral column and sternum, where the ramus perforans pierces the muscle. There are especially to the left of the mamma swellings larger than a dollar. They are easily found if you pass your finger with moderate pressure between the ribs above the intercostal spaces from the vertebral column to the sternum. These intercostal spaces feel slippery and ribbed and are very painful. This is the seat of the intercostal neuralgia, which in its higher type—where it is not caused by vitium cordis—is called angina pectoris, and further down asthenic dyspepsia. I have seen no patient who did not ascribe these pains to the heart or the lungs. The heart undoubtedly is

sometimes affected indirectly by irradiation and causing palpitation, or directly with intermitting action on account of fatty degeneration. The symptoms from the heart disappear first under treatment. Pressure upon these places can cause ructus, singultus, yawning, inclination to vomiting, but only in protracted cases. The most diseased part is usually down from the first lumbar vertebra, on both sides of the proc. spinosi over the whole sacrum to the end of the os coccygis. The diameter of the hyperplasia may be several inches on the sacrum with single swellings of the size of a walnut. Pain is intense as if the back would break in two (lumbago).

The nervè ileo-hypogastricus and ileo-inguinalis cause the visceral neuralgia which has its seat only in the abdominal walls, but is referred by the patient to the inside and is perhaps sometimes removed in the form of a thoroughly healthy ovary. I do not wish to say thereby that an inflammatory process of the sexual organs cannot produce engorgement of the lymph and hyperplasia with all its symptoms. From the crista ilei down to the sacrum there is again a favorite place of obliterated lymph collaterals.

The os coccygis with the nervus coccygis is noted for coccyalgia. The resection of the coccyx for neuralgia is just as necessary as the use of the guillotine for headache. Whether or not the enigmatical Luschka's gland be concerned in it sometimes I am not yet able to decide. This place is often very painful, but yields to treatment.

I do not know whether or not the same disease occurs on the inner pelvic walls, but I doubt it, as the neighborhood of the intestines does not favor

stases of the lymph. Thure Brandt may give information about that. I have seen the parts innervated by the nerve genito-cruralis several times, exceedingly painful, but only among women, especially the mons veneris and the large labia pudenda.

On the upper thigh an adhesion of all muscles mutually and with the skin is no rarity. Half and totally obliterated lymph canals in old cases are found with large swellings seemingly attached to the periosteum. The part underneath the nerve glutei directly upon the pelvis is the seat of sciatica and not the nerve ischiaticus, though the latter is sometimes diseased.

The mucous pockets of the knee are often afflicted and are conspicuous by their large swellings. They are often mistaken for gonitis, but careful investigation of the patella shows the knee-joint properly intact. They hardly ever suppurate. I have seen only one case where suppuration followed. Rheumatic swellings never suppurate, except after great injury. If the synovia is diseased there will be found fibrous and osseous precipitations upon synovia and patella with floating bodies, which cause a loud rattling noise.

The lower part of the thigh behaves like the other parts, particularly in the behavior of the tibia. The passing finger feels, in fresh cases, uneven, small protuberances, in older cases, the hyperplasia of the periosteum is velvet-like; the massaging of it causes the unenviable feeling of rubbing the raw flesh with sand.

The Achillodynia which Albert* described can often be seen, it is a hyperplasia of connective tissue of the vagina tendinis at its insertion,

and results in adhesion with the underlying tissues, which renders the whole muscle immobile and puts the foot by its contraction in pes equinus position. It has nothing to do with periostitis as Pitha thinks. Like Leo Rosenthal, I was never able to find neuroma there, but I have found particles of fibrine of the size of a pea. The hyperplasia of the vagina tendinis is often so great that it projects beyond the tendon and the latter looks as if imbedded in it. Here belongs the case of Kussmaul's clinic which has been described by Kreiss in No. 51 *Berl. Kl. Woch.*, 1886, as primary indurated myositis. It is a common case of chronic rheumatism, and I can at any time send a company of such cases to German clinics, if the expenses are paid.

While the inside of the calcaneum is very seldom diseased there often is involvement of the periosteum of the outside which forms usually the terminal station of the sciatic telephone.

The only participation of the foot joints are irreproachable swellings which originally represented spontaneous hernias of the synovial membrane caused by injury, but which were separated later. The dorsal skin of the foot rarely becomes adherent though these parts are sometimes diseased, but more in the metatarsal spaces, which differ from the behavior of the metacarpal spaces in that they go down through this space to the ball of the foot, probably because the metatarsal bones oppose expansion more than the metacarpal bones. There are cases where absolutely nothing more is affected than these interstices. One notices a slight swelling on the dorsal side, especially of the first metatarsal space; there seems to be nothing strange on

* *Wien. Med. Zts.*, No. 2, 1893.

the ball of the foot. That this alone cannot be the cause of the exceedingly painful walk of the patients is evident; they walk with great effort, with two canes, as if they were on needles. But if you look at it more carefully you will notice that the ball of the foot is enlarged towards the toes, the line of demarcation which is normally between ball and toes, is often removed to the first toe joint and it looks as if there were webs between the toes. Simultaneously the capitula metatarsorum are exceedingly painful upon pressure. These afflictions are more frequent in men than in women. The ligaments and muscles of the planta show in general rheumatism, the same symptoms which we notice in inflammatory flat foot, or in torn ligaments from accidents, painfulness of the foot and along the outside border of the foot with a culminating point on the prominence of the base of the fifth metatarsal bone.

TREATMENT.

Is it not peculiar that we have more specifics and other remedies for the diseases which we cannot help, than for others? There is a legion of anti-rheumatic medicines, and each has creditable bondsmen; how is that? Very simple. We know that these diseases appear in attacks with intervals of painfulness. Of course, the remedy which the patient took just when the remission came on was the principal agent which caused it, be it St. Jacob's oil, colchicum, or guano.

We often meet with the opinion that these diseases cannot be cured. I declare here, most emphatically by my experience, which includes the most desperate and most protracted cases in this line, that I never saw an incurable case, and that if once a cure has been established, no more symp-

toms of neuralgias or neurasthenic sufferings will occur. The first grave cases of this kind left my treatment years ago.

Of course I exclude from this prognosis cases with complications like chronic affections of our large glands. These cures are not accidental, but the result of long, assiduous work, and can be foretold and observed *gradatim* in their different phases. It is certainly not the materia medica which celebrates triumphs in this connection.

I believe the surgical treatment has prospect for enlarging here its domain. Too hard and voluminous swellings may be removed with the knife, it would be a gain of time, and in the same manner the accumulation of obsolete lymph canals, could be easily extirpated. Unfortunately I did not have experimental material on hand. It is certain that the knife would be the most rational method to remove synovial hernias. They require a very long time to be removed by other methods, and if not removed, they constitute a source of great feebleness and invalidity of the foot.

Furthermore, there are the numerous contractions and pseudo-ankyloses which belong to the surgeon's territory. Real ankyloses occur and distinguish themselves often by absorption of the epiphyses, but they are rare. The pseudo-ankyloses are always secondary, caused by contractures of the muscles and retraction of ligaments. I treat them with immersions of the limbs in hot water. As soon as the limbs are a little loose and softened up with immersion and following massage, I make tensions under chloroform, but am cautious and let myself be led entirely by my sensations in regard to the extent of them, and rather repeat them than

force too much, because we sometimes meet with infractions of spongy epiphyses, or with local paresis with circumscribed gangrene, which sometimes hold on two or three months. I have never found it necessary to perform a tenotomy. I had, amongst others, a case of pseudo-ankylosis of nearly all the joints of the body. They were from four to thirteen years old. A colleague who consulted with me seemed incredulous, when I said all these contractures would be cured. I asked him on the spot, pointing towards a contracted knee-joint, if he did not think that might be stretched. He gave an affirmation to the question. The same when I asked this question in regard to a finger of a contracted hand. Well, I said, you concede the possibility of the cure of all these single contractures, why should they not all of them be cured? Never be bluffed by the appearance of seemingly incurable cases of multiple rheumatic pseudo-ankylosis. I performed on the above case, forced stretching and bending of thirty-five joints in two séances. Infraction of the epiphysis of the tibia, a paresis of the nerve radialis, lasting three months, two circumscribed gangrenes of the size of pennies was the consequence. This patient over fifty years old, after she had lost the use of her limbs for thirteen years, after five months' treatment, was able to walk eighteen blocks every day. She learned to use her hands two years later, as she had forgotten the use of them, and only by little occupations in kitchen and home could be induced to use them again. During the four years which have supervened she has never had an attack of neuralgia or rheumatism and she is completely

cured, but I had to fight a neurasthenic melancholia which developed and lasted two years.

Electricity is of great advantage, especially the constant current, to stop the beginning of degeneration of muscle and nerve elements. But that is all; without accompanying massage it is not of much use.

INTERNAL TREATMENT.

The much lauded salicylic preparations seem to be a kind of a "maid of all work," if one believes its adorers. They are all right whenever cocci are present, for acute rheumatism, gonorrhœic rheumatism, preserved cherries or plums, but not in chronic rheumatism.

Chronic rheumatism offers three indications:

The *first indication* has the purpose of working against the changes of the blood, which are the result of the disease. A. G. Garrod* examined the blood of eighty rheumatics during their disease and arrived at the following conclusions:

"An attack of rheumatism is always accompanied by a considerable loss of red blood corpuscles, which appears in the beginning of the attack. In prolonged attacks there is no progressive decrease to be noticed, still their number remains on the same low average, whether there be any fever or not. The leucocytes are at the same time immensely increased. As soon as the attack is over the red corpuscles augment astonishingly fast and these changes give us a much better picture of the states of the disease than the temperature curve. The anæmia of rheumatism is either an acute oligocythæmia, from which rapid recovery results, or a more

* *Lancet*, Royal Med. Surg. Soc., Feb. 13, 1892.

chronic pseudo-chlorosis, the latter in few cases. The higher the fever the more leucocytes, but in sub-acute cases also there takes place an increase of them, likewise of the number of the blood platelets. 'We see by that that iron is properly indicated.'"

The *second indication* for treatment of chronic rheumatism consists in exploring the causes of the engorgement of the lymph and to remove them, if found. In regard to its origin we must consider the fact that far more women are victims. The cause of this may be in the want of exercise in the female sex.

The lower extremities must be well exercised in all their motions, if the lymph is to be forwarded from the legs to the abdomen and from there further up. Instead of this, the first rule of conduct which a suffering woman receives from her gynæcologist is not to mount stairways; "this does harm to the much abused uterus." This extremely quiet mode of life thus regulated has, of course, its influence upon the peristaltic motion of the lymph of the intestinal cavities does not give place to that of the limbs. Stagnation in the trunk and extremities follows and plethora hyper-albuminosa in the glands and organs of the cavities results. The plethora of the uterus causes the formation of numerous leucocytes and leucorrhœa with all its peri and parametric processes. The naturally more developed lymphatic system of the female sex certainly is a predisponent. With men it is more the overcharge of the lymph and blood with food which, of itself, or combined with want of exercise and occasional cold, offers the basis of disease. Physically it is right that the

stagnation first originates where the lymph remains longest, which is in the remotest periphery of the body, the feet and hands. We see how important a factor is the peristaltic motion, for as soon as the bowels are opened we have a relief of the symptoms. Constipation accentuates them. Therefore, *keep the bowels open*. Arsenic can be administered alternately with iron, even to well nourished persons. The treatment is very severe and improvement of the fluids of the body is imperative.

Regarding the influence of iodide of potassium upon the indurated swellings, I can say little. My advice is to do without it; its effect upon the rheumatic swellings is more than doubtful, anyway; it does not encourage the action of the stomach and compromises the kidneys when given in the customary absurdly high doses.

Still we have a remedy to satisfy the third *indication* and to wash away the fibrine formation, that is the methodical use of much hot water connected with diuresis. Here is the way to the often surprising successes of the thermes, and it is surely not alone the hot water which is responsible for the beneficial effect, but their slight content of alkalies too, as I had opportunity to notice at the Hot Springs, Ark.. A weak solution of alkalies, especially sodium sulphate, is known to dissolve fibrine. I will have occasion to publish my unfinished experiments which are in the line of introducing a solution of sodium sulphate in hot water into the swellings. This treatment, with quantities of hot water is also necessary, because the principally mechanical treatment physiologically thickens the blood and increases the lymph, so much so, that

continued passive motions kill an animal on the spot by thickening of the blood. (Landois.)

The above quoted treatments may produce a passing improvement, but have little permanent success if not connected with *thorough massage, passive motions and Swedish exercises*. I do not mean the daily massage of the massage professors, which is good enough to keep the circulation of a healthy person going; I mean the weighed massage from the hand of a physician who is experienced in it, who first hunts up the swellings and knows where to find them and then tears off the adhesions and removes the swellings by pressure. It takes strength. I do not hesitate to state that sometimes in completely atonic cases of fibrous degenerated muscular tissue of desperate old cases, I even produce contusions, to revive the circulation. That is, however, exceptional. It is evident that the tearing off of adhesions causes severe pains which, however, give way very soon after a few weeks. The treatment is of long duration, but always satisfactory, because always improving the patient and, if continued long enough, curing him.

I wish to cite here an instructive experiment by Zabłudowsky* which shows how the elements of our tissues saturate the surrounding nutritive fluids with effete matter and get fatigued, and how they regain their functions by removal of the lymph by massage and so making place for new fluid.

“A person raised a weight of one kilo. 840 times in intervals of one second by maximally bending the elbow joint from the table to the

shoulder upon which his forearm rested. Later he was not able even after hard effort to do anything. After I had massaged the young man's arm for five minutes he was able to raise without effort in the same rhythm as before, the same weight 1100 times.”

This treatment has to be changed in some way in cases of neurasthenic rheumatism where there are decided signs of parenchymatous disturbance of the nutrition of parts of the brain. We must then also remove the accumulated effete matter by massage of the neck with passive motions of the latter. If we add general deep massage of the whole body we improve the composition of blood and lymph better than with anything else, though it is usually simultaneously necessary for the removal of the complicating rheumatic swellings in other parts of the body which almost always accompany cerebral neurasthenia. The methodical use of fruits as they are prescribing grapes in Switzerland, is the best to keep up peristaltic motion. Stimulants are splendid, if used by the physician himself, to rally his sinking strength for the benefit of his patient, but otherwise no, most emphatically, no. Mental and other kind of work must be mild and not too uniform. If the cares and worries of business exhaust the cells of the brain, let the man rest by indulging in a little game of poker, with the ante just high enough to make it interesting; that rests him more than hours of neurasthenic sleep. Such, who make poker playing their business and get neurasthenia (I never saw that, though), I would advise to go and listen to a good sermon, but I believe that I would have better luck with my advice, with the clergy and business men, than with gamblers.

*Die Bedeutung der Massage, Dr. Zabłudowsky, Berlin, 1933.

Plain food, and not too much, for too much seasoning acts like too much uniform work and thinking, or alcohol. It exhausts the parenchymatous vitality.

I cannot close without mentioning neurasthenic melancholia. It often accompanies severe cases of rheumatism and is evidently based upon the same disturbances of parenchymatous nutrition of the responding parts of the brain. Its treatment is always successful, not by psychical treatment but

by general massage, especially of the lymph canals of the neck in connection with the use of drastics. We may also expect to give an impulse for judging differently and treating more successfully those mental diseases, which are based upon neurasthenic disturbances.

Lastly, I wish to draw attention to a neurosis, which can present itself in severe cases during long treatment and may prove serious, both for patient and physician, it is—the asthenia of the *nervus rerum*.

